Valley Water

# Annual Groundwater Quality Summary Report

For Testing Performed in 2018

## Protecting our Groundwater

Groundwater is an essential local water resource, providing about half of the water used in Santa Clara County each year. In some areas, groundwater is the only source of drinking water. Protecting our groundwater helps ensure that adequate supplies are available now and in the future.

**Valley Water works to safeguard groundwater by:**

- Replenishing groundwater with local and imported surface water.
- Reducing demands on groundwater through the delivery of treated water, water conservation, and water recycling.
- Monitoring groundwater and conducting programs to protect against contamination.

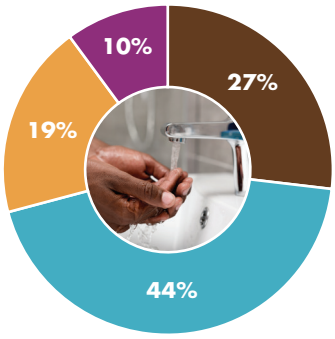
Well water testing throughout the county indicates that groundwater quality is generally very good. All drinking water, whether treated municipal, groundwater, or bottled, contains small amounts of some contaminants. As water travels over the surface of the land and through the ground, it absorbs naturally occurring minerals and can pick up substances from animal and human activities.

**Contaminants that may be present in groundwater include:**

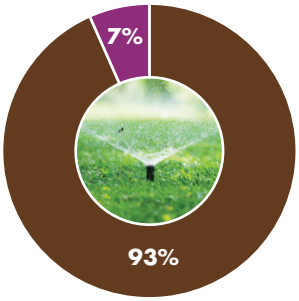
- Microbial contaminants such as viruses and bacteria that may come from sewage treatment plants, sewer lines, septic systems, agricultural operations, and wildlife.
- Inorganic contaminants such as salts and metals that can be naturally occurring or result from industrial or domestic wastewater discharges, animal facilities, farming, and mining.
- Insecticides, herbicides, and fertilizers that may come from agriculture and residential uses.
- Organic chemicals including synthetic and volatile chemicals from industrial processes, gas stations, dry cleaners, agricultural application, and septic systems.
- Radioactive contaminants that are naturally occurring in our area.

The presence of natural or man-made contaminants does not necessarily indicate that water poses a health risk. State and federal drinking water standards identify maximum contaminant levels that relate to health risk.

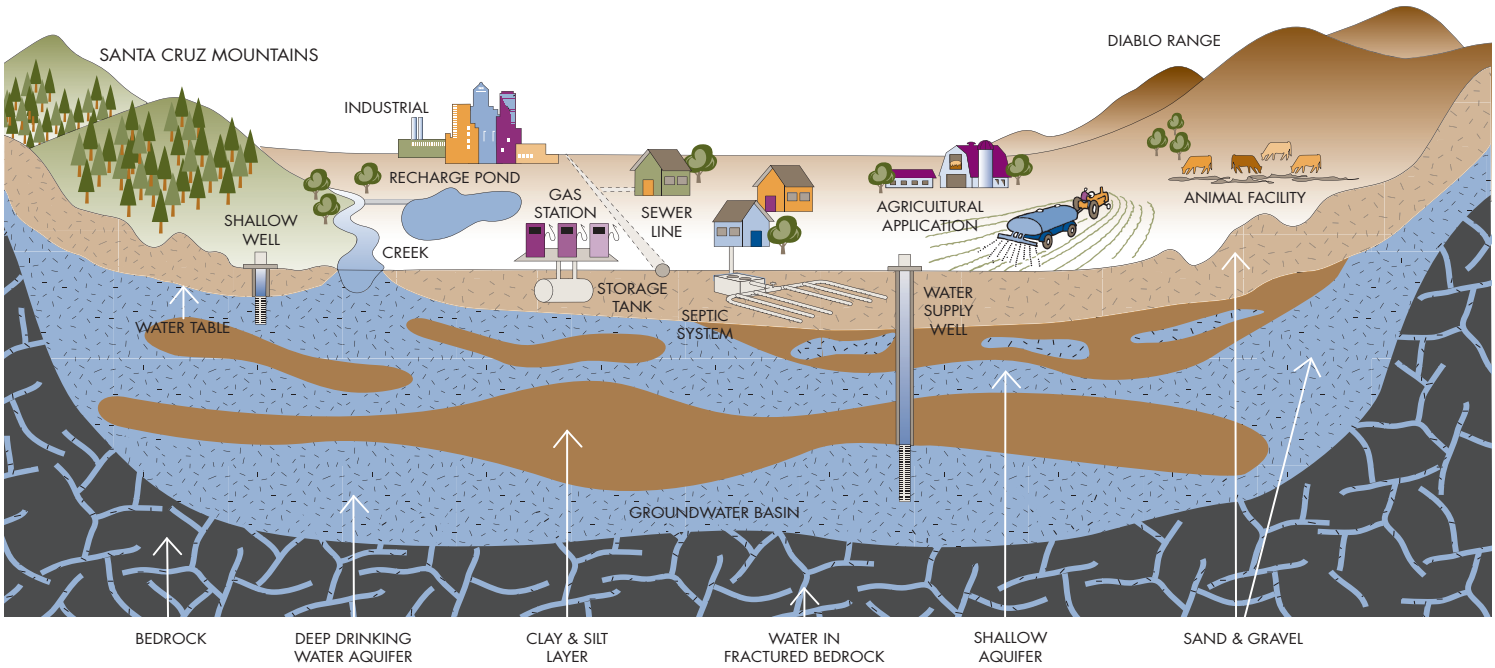
**NORTH COUNTY WATER USE**




**SOUTH COUNTY WATER USE**




- Groundwater
- Treated Water
- Hetch-Hetchy
- Other Local and Recycled Water



# 2018 Groundwater Quality Summary

## Monitoring confirms generally high groundwater quality, but South County nitrate is a concern

In 2018, Valley Water sampled over 225 domestic wells and evaluated data from over 240 public water supply wells in North and South County (see map on back page). Nearly all wells tested meet drinking water standards except for nitrate in some South County domestic wells. Valley Water works with regulatory and land use agencies on this ongoing challenge.

The table below summarizes the results for any substance that was detected in 2018; not every well was tested for all substances listed. Although Maximum Contaminant Levels (MCLs) apply only to public water systems, MCLs are helpful in understanding results from domestic wells. Please note this regional summary may not reflect the water quality in your well since every property and well is unique.

| Primary Drinking Water Standards – Public Health Related Standards | Units | Maximum Contaminant Level | Public Health Goal | North County | | South County | | |
|---|---|---|---|---|---|---|---|---|
| **Inorganic Contaminants** | | | | **Median** | **Range** | **Median** | **Range** | **Typical Sources** |
| Aluminum | ppb | 1,000 | 600 | 14 | ND - 73 | 17 | ND - 40 | Erosion of natural deposits |
| Arsenic | ppb | 10 | 0.004 | ND | ND - 4 | ND | ND - 5 | Erosion of natural deposits; glass and electronics production waste |
| Asbestos | MFL | 7 | 7 | ND | ND | 0.7 | ND - 1.2 | Erosion of natural deposits |
| Barium | ppb | 1,000 | 2,000 | 120 | ND - 270 | 100 | ND - 300 | Erosion of natural deposits |
| Chromium (total) | ppb | 50 | -- | ND | ND - 1.9 | 1.40 | ND - 7.61 | Erosion of natural deposits; metal plating |
| Copper[1] | ppb | 1,300 | 300 | 2.4 | 1.9 - 11 | 1.8 | ND - 8.9 | Internal corrosion of household plumbing systems; erosion of natural deposits |
| Fluoride (Natural Source) | ppm | 2 | 1 | 0.10 | ND - 0.34 | 0.10 | ND - 0.74 | Erosion of natural deposits |
| Lead[1] | ppb | 15 | 0.2 | ND | ND - 1.4 | ND | ND | Erosion of natural deposits; internal corrosion of household water plumbing systems; industrial discharges |
| Nickel | ppb | 100 | 12 | ND | ND - 1 | ND | ND - 5.1 | Erosion of natural deposits; discharge from metal industries |
| Nitrate + Nitrite (as N) | ppm | 10 | 10 | 3.7 | 0.5 - 7.7 | 4.2 | ND - 43 | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits |
| Nitrate (as N) | ppm | 10 | 10 | 3 | ND - 12 | 3.9 | ND - 48 | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits |
| Perchlorate | ppb | 6 | 1 | ND | ND | ND | ND - 5.6 | Solid rocket propellant, fireworks, explosives, flares, matches, and other industrial sources |
| Selenium | ppb | 50 | 30 | ND | ND - 5.0 | ND | ND - 5.8 | Erosion of natural deposits |
| **Radioactive Contaminants** | | | | | | | | |
| Gross Alpha | pCi/L | 15 | -- | ND | ND - 3 | 3 | 3 | Erosion of natural deposits |
| Radium 228[2] | pCi/L | -- | 0.019 | ND | ND - 0.346 | -- | -- | Erosion of natural deposits |
| Uranium | pCi/L | 20 | 0.43 | ND | ND - 1.1 | -- | -- | Erosion of natural deposits |
| **Volatile Organic Chemicals** | | | | | | | | |
| 1,1,1-Trichloroethane (1,1,1-TCA) | ppb | 200 | 1,000 | ND | ND - 1.1 | ND | ND | Discharge from metal degreasing and other industrial processes |
| 1,1-Dichloroethene (1,1-DCE) | ppb | 6 | 10 | ND | ND - 0.64 | ND | ND | Discharge from industrial processes |
| 1,2,3-Trichloropropane (TCP) | ppb | 0.005 | 0.0007 | ND | ND - 0.0116[3] | ND | ND | Discharge from industrial processes |
| Tetrachloroethene (PCE) | ppb | 5 | 0.06 | ND | ND | ND | ND - 2.7 | Discharge from industrial processes, dry cleaners, and automotive repair |
| Toluene | ppb | 150 | 150 | ND | ND | ND | ND - 20 | Discharge from industrial processes and leaking underground gas tanks |
| Total Trihalomethanes (THMs) | ppb | 80 | -- | ND | ND - 4.4 | 7.6 | 7.6 | Drinking water chlorination |
| **Microbiological Contaminants[4]** | | | | **Present** | **Absent** | **Present** | **Absent** | **Typical Sources** |
| E. Coli Bacteria | | -- | -- | 2 | 19 | 2 | 227 | Human and animal fecal waste |
| Total Coliform Bacteria | | -- | -- | 11 | 10 | 69 | 160 | Naturally present in the environment |

**Notes**:
1) Lead and copper do not have primary MCLs but have "action levels" of 15 and 1,300 ppb, respectively. These substances are regulated by the state for public water systems since they can adversely affect public health.
2) The MCL for combined Radium 226 + 228 is 5 pCi/L.
3) Verification sampling did not confirm the high TCP result. All subsequent results were below the detection level (0.005 ppb).
4) The table shows the number of domestic wells tested that had bacteria present or absent. Public water systems are required to ensure that fewer than 5% of samples per month have total coliform present and that no samples have e.coli present. Domestic wells are not subject to these standards.
5) -- indicates there is no related drinking water standard or that the substance was not tested or detected.

**Terms and Definitions**

**Color units:** A measure of color in water

**Maximum Contaminant Level (MCL):** the highest level of a contaminant allowed in public water systems. Primary MCLs are set as close to PHGs as is economically and technologically feasible. Secondary MCLs protect the odor, taste, and appearance of drinking water.

**Median:** the "middle" value of the results, with half of the values above the median and half of the values below the median.

**Public Health Goal (PHG):** the level of a contaminant in drinking water below which there is no known or expected risk to human health. PHGs are set by the California EPA.

**ND:** Not detected (at laboratory testing limit)

**NTU:** Nephelometric Turbidity Units

**pCi/L:** picoCuries per liter (a measure of radiation)

**pH units:** measure of pH

**ppm:** parts per million (milligrams per liter)

**ppb:** parts per billion (micrograms per liter)

**ppt:** parts per trillion (nanograms per liter)

**TON:** Threshold Odor Number

**uS/cm:** microSiemens per centimeter (a measure of the dissolved inorganic salt content)

# 2018 Groundwater Quality Summary

| Secondary Drinking Water Standards – Aesthetic Standards | Units | Maximum Contaminant Level | Public Health Goal | North County | | South County | | Typical Sources |
|---|---|---|---|---|---|---|---|---|
| | | | | Median | Range | Median | Range | |
| Chloride | ppm | 250 | -- | 52 | 19 - 86 | 43 | 8 - 140 | Runoff/leaching from natural deposits; seawater influence |
| Color | Color units | 15 | -- | ND | ND - 7 | ND | ND | Naturally-occurring organic materials |
| Iron | ppb | 300 | -- | ND | ND - 3,100 | 1 | ND - 8,600 | Leaching from natural deposits; industrial discharges |
| Manganese | ppb | 50 | -- | ND | ND - 111 | 0.4 | ND - 150 | Leaching from natural deposits; industrial discharges |
| Odor Threshold | TON | 3 | -- | ND | ND - 2 | ND | ND - 1 | Naturally-occurring organic materials |
| pH | pH units | 6.5 - 8.5 | -- | 7.6 | 6.9 - 8.1 | 7.6 | 7.0 - 7.9 | Erosion of natural deposits; carbon dioxide emissions; rainfall |
| Specific Conductance | uS/cm | 900 | -- | 695 | 470 - 1,000 | 634 | 366 - 1,360 | Substances that form ions when in water; seawater influence |
| Sulfate | ppm | 250 | -- | 42 | 6 - 121 | 35 | ND - 374 | Runoff/leaching from natural deposits; industrial discharges |
| Total Dissolved Solids (TDS) | ppm | 500 | -- | 405 | 256 - 864 | 398 | 210 - 1,680 | Runoff/leaching from natural deposits |
| Turbidity | NTU | 5 | -- | 0.2 | ND - 2.0 | 0.15 | ND - 0.78 | Soil runoff |
| Zinc | ppb | 5,000 | -- | ND | ND | 1 | ND - 560 | Runoff/leaching from natural deposits; industrial discharges |
| **Other Water Quality Parameters** | | | | | | | | |
| Alkalinity (total, as CaCO3) | ppm | -- | -- | 220 | 130 - 380 | 190 | 98 - 370 | Atmospheric and vadose zone carbon dioxide |
| Boron | ppb | -- | -- | ND | ND - 184 | 120 | ND - 2,400 | Erosion of natural deposits |
| Bromide | ppm | -- | -- | 0.15 | 0.10 - 0.64 | 0.17 | ND - 1.54 | Erosion of natural deposits; seawater intrusion; sea spray |
| Bromodichloromethane (THM) | ppb | -- | -- | ND | ND - 0.72 | ND | ND | Drinking water chlorination |
| Bromoform (THM) | ppb | -- | -- | ND | ND - 1.83 | ND | ND | Drinking water chlorination |
| Calcium | ppm | -- | -- | 72 | 26 - 110 | 52 | 29 - 98.9 | Erosion of natural deposits |
| Carbon Dioxide | ppb | -- | -- | 7.0 | 3.1 - 30 | -- | -- | Atmospheric sources; dissolution of carbonate rocks |
| Carbonate (as CO3) | ppm | -- | -- | ND | ND - 2.1 | ND | ND | Atmospheric sources; dissolution of carbonate rocks |
| Chloroform (THM) | ppb | -- | -- | ND | ND | ND | ND - 7.6 | Drinking water chlorination |
| Chromium 6 (hexavalent) | ppb | -- | 0.02 | 1.12 | ND - 3.70 | 1.19 | ND - 2.62 | Erosion of natural deposits; metal plating and industrial discharges |
| Cobalt | ppb | -- | -- | ND | ND - 0.153 | ND | ND | Leaching from natural deposits; industrial discharges |
| DCPA (Total Di & Mono Acid Degradates) | ppb | -- | -- | ND | ND - 0.13 | -- | -- | Herbicide used to control grasses and weeds |
| Dibromochloromethane (THM) | ppb | -- | -- | ND | ND - 1.62 | ND | ND | Drinking water chlorination |
| Hardness (total, as CaCO3) | ppm | -- | -- | 298 | 100 - 558 | 261 | ND - 931 | Erosion of natural deposits |
| Lithium | ppb | -- | -- | 3 | ND - 8.1 | 9 | ND - 27 | Erosion of natural deposits; industrial discharges |
| Magnesium | ppm | -- | -- | 26 | 8.9 - 58 | 30 | 9.2 - 68 | Erosion of natural deposits |
| Molybdenum | ppb | -- | -- | ND | ND - 2.2 | ND | ND - 4.4 | Erosion of natural deposits |
| Orthophosphate | ppm | -- | -- | 0.11 | ND - 0.30 | 0.06 | ND - 1.12 | Leaching from natural deposits; agricultural runoff |
| Perfluorohexane Sulfonic Acid (PFHXS) | ppt | -- | -- | 1.95 | ND - 3 | -- | -- | Discharge from industrial processes |
| Perfluorohexanoic Acid (PFHXA) | ppt | -- | -- | 1.75 | ND - 2.5 | -- | -- | Discharge from industrial processes |
| Potassium | ppm | -- | -- | 1.2 | ND - 1.7 | 1.2 | ND - 1.8 | Erosion of natural deposits |
| Silica | ppm | -- | -- | 28.8 | 28.2 - 30.6 | 28.9 | 22.1 - 48.4 | Erosion of natural deposits |
| Sodium | ppm | -- | -- | 30 | 16.5 - 69 | 25.2 | 12.3 - 74.2 | Erosion of natural deposits |
| Total Organic Carbon (TOC) | ppm | -- | -- | ND | ND - 1.6 | -- | -- | Various natural and manmade sources |
| Vanadium | ppb | -- | -- | ND | ND - 10.6 | 1.8 | ND - 14 | Erosion of natural deposits; discharge from industrial processes |

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## Do I need to test my water?

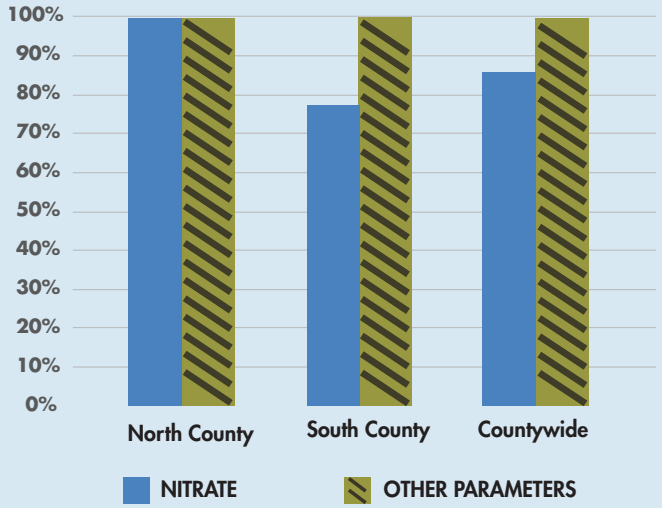
If your water comes from a public water supply, such as a city or water company, it is tested regularly to make sure it meets state and federal drinking water standards.

If your water comes from a private well, the well owner is responsible for making sure it is safe to drink. Although Valley Water monitors regional groundwater quality, every property and well is unique. Some contaminants are colorless and odorless, so the first step in protecting your health is having your water tested.

Valley Water encourages private well owners to have their well water tested by a state-certified laboratory annually or anytime there is a change in taste, odor, or appearance. If your water contains any contaminant above drinking water standards, you may want to install a treatment system or use an alternative source of water.

***Valley Water currently offers eligible domestic well users free basic water quality testing and rebates of up to $500 for nitrate treatment systems. Call the Groundwater Hotline at (408) 630-2300 for more information.***

**WATER SUPPLY WELLS TESTED IN 2018 MEETING PRIMARY DRINKING WATER STANDARDS**




Everyone has a role in protecting groundwater. Well owners should maintain their wells and septic systems and create a zone of protection around their wells where no potential contaminants are used or stored. ***See Valley Water's Guide for the Private Well Owner at www.valleywater.org for helpful tips.*** All residents can help by conserving water and by raising awareness that activities on the land surface can affect our largest drinking water reservoir, which is beneath our feet.

## Water Quality Challenges

### Nitrate

As shown in the chart to the left, nitrate is an ongoing challenge, particularly in South County. Common sources are fertilizers, septic systems and livestock waste, so nitrate is often higher in rural and agricultural areas. Nitrate can interfere with the blood's ability to transport oxygen and is of greatest concern for infants and pregnant women. The effects of consuming high levels of nitrate are often referred to as "blue baby syndrome" and symptoms include shortness of breath and blueness of the skin.

Valley Water monitors nitrate conditions and trends, helps dilute nitrate through groundwater replenishment, and works with land use and regulatory agencies to address elevated nitrate in groundwater. To help reduce well owner exposure to elevated nitrate, Valley Water is offering rebates of up to $500 for eligible treatment systems. Call the Groundwater Hotline at (408) 630-2300 for more information.

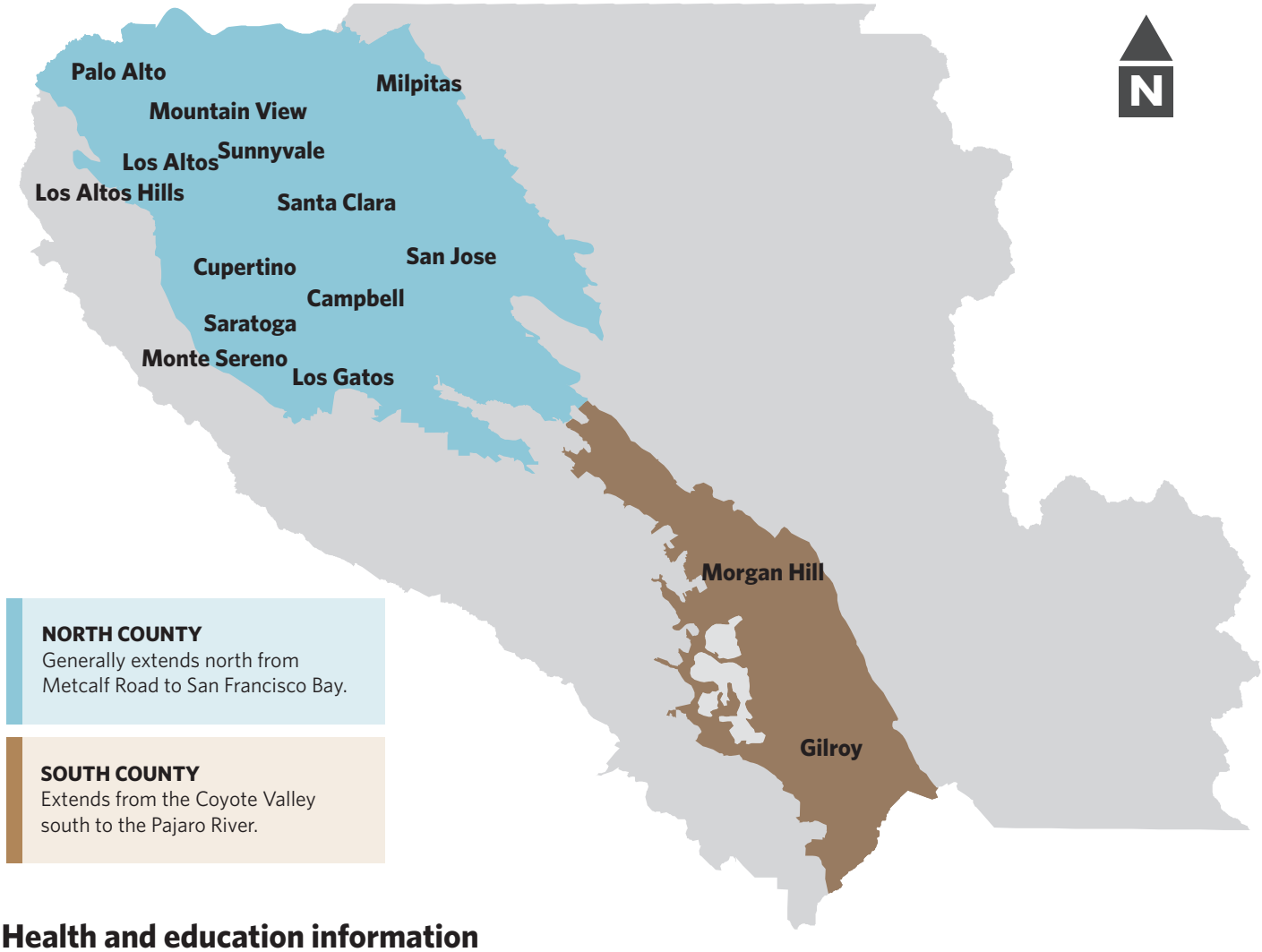
### 1,2,3-Trichloropropane

1,2,3-trichloropropane, also known as 1,2,3-TCP, is a volatile organic compound that has been used as a cleaning and degreasing solvent and is also associated with pesticide products. The detection of elevated 1,2,3-TCP located in two North County wells does not indicate a widespread concern. Subsequent testing did not show 1,2,3-TCP present in those wells.

### Perchlorate

Perchlorate is a salt used in rocket fuel, highway flares, fireworks and other products. At high levels, perchlorate can interfere with the thyroid gland and affect hormones that regulate metabolism and growth. Perchlorate contamination from a former highway flare manufacturer in Morgan Hill was first discovered in 2000. Due to cleanup activities and groundwater recharge, perchlorate levels have decreased dramatically. The area affected is getting smaller, now extending from Tennant Avenue south to approximately San Martin Avenue. The responsible party continues to remediate and monitor contaminated groundwater and provides treatment systems or alternative water supplies for impacted water supply wells (currently seven). Valley Water continues to work with the Central Coast Regional Water Quality Board and others involved to ensure groundwater quality is restored as soon as possible.

## You live on a groundwater basin.




**NORTH COUNTY**
Generally extends north from Metcalf Road to San Francisco Bay.

**SOUTH COUNTY**
Extends from the Coyote Valley south to the Pajaro River.

## Health and education information

All drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained from the U.S. Environmental Protection Agency's Safe Drinking Water Hotline **(800-426-4791)**, the California Division of Drinking Water ***(www.waterboards.ca.gov/drinking_water/programs)***, the California Office of Environmental Health Hazard Assessment ***(www.oehha.ca.gov/water)***, or from your healthcare provider.

## CONTACT US

For more information regarding groundwater quality, contact **Victoria Garcia** at **(408) 630-3136** or by email at ***VGarcia@valleywater.org.*** Or use our **Access Valley Water** customer request and information system at ***https://delivr.com/2yukx*** to find out the latest information on Valley Water projects or to submit questions, complaints or compliments directly to a Valley Water staff person.

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